CSc 3320: Systems Programming

Spring 2021

Homework

4: Total points 100

Submission instructions:

1. Create a Google doc for each homework assignment submission. 2. Start your responses from page 2 of the document and copy these instructions on page 1. 3. Fill in your name, campus ID and panther # in the fields provided. If this

information is missing in your document TWO POINTS WILL BE DEDUCTED per submission.

4. Keep this page 1 intact on all your submissions. If this *submissions instructions* page is missing in your submission TWO POINTS WILL BE DEDUCTED per submission.
5. Each homework will typically have 2-3 PARTS, where each PART focuses on specific topic(s).
6. Start your responses to each PART on a new page.
7. If you are being asked to write code copy the code into a separate txt file and submit that as well.
8. If you are being asked to test code or run specific commands or scripts, provide the evidence of your outputs through a screenshot and copy the same into the document.
9. Upon completion, download a .PDF version of the document and submit the same.

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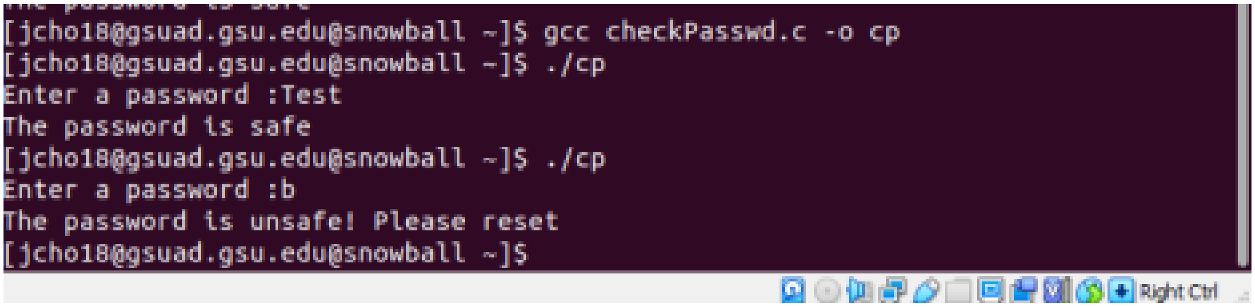
ALL PROGRAMS MUST BE COMMENTED. YOUR SOLUTION WILL NOT BE ACCEPTED IF THERE ARE NO COMMENTS IN YOUR SCRIPT. Also note that the comments MUST be useful and not be random.

PART 1: 40pts
Must incorporate use of Functions and Pointers

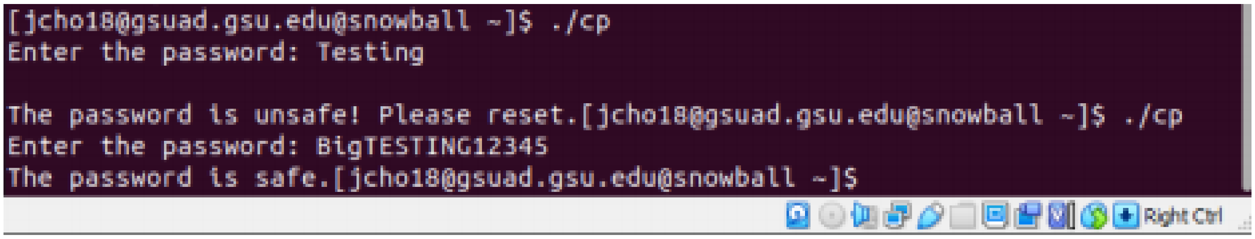
1. Write a C program `checkPasswd.c` to check if the length of a given password string is 10 characters or not. If not, deduct 5 points per missing character. If the total deduction is greater than 30 points, print out the deduction and message "The password is unsafe! Please reset."; otherwise, print out "The password is safe."



```
The password is safe
[jcho18@gsuad.gsu.edu@snowball ~]$ gcc checkPasswd.c -o cp
[jcho18@gsuad.gsu.edu@snowball ~]$ ./cp
Enter a password :Test
The password is safe
[jcho18@gsuad.gsu.edu@snowball ~]$ ./cp
Enter a password :b
The password is unsafe! Please reset
[jcho18@gsuad.gsu.edu@snowball ~]$
```

2. Similar to above question, update the C program `checkPasswd.c` to check if a password is safe or by not by checking only the evaluation criteria below. It will still print out the final score, and "safe" or "unsafe" when deduction is more than 30 points.

● Missing lower case -20 points ● Lack of capital letters -20 points ● Missing numbers -20 points ● More than 2 consecutive characters (e.g. 123 or abc) -20 points



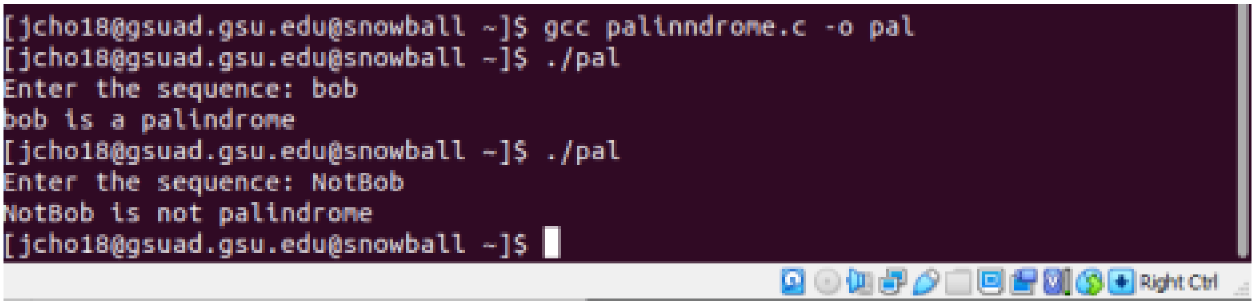
```
[jcho18@gsuad.gsu.edu@snowball ~]$ ./cp
Enter the password: Testing

The password is unsafe! Please reset.[jcho18@gsuad.gsu.edu@snowball ~]$ ./cp
Enter the password: BigTESTING12345
The password is safe.[jcho18@gsuad.gsu.edu@snowball ~]$
```

Part II : 40pts

Must incorporate the use of Functions and Pointer arrays

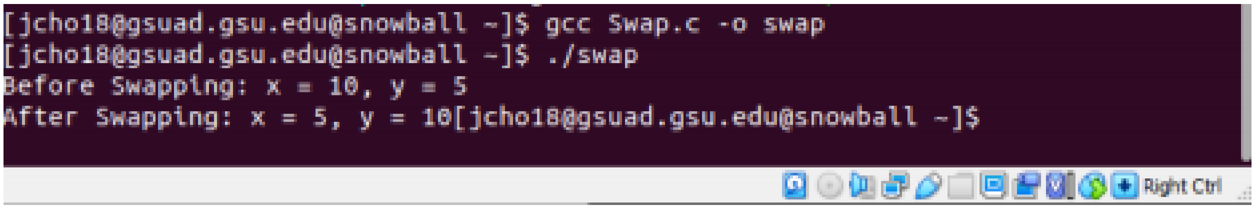
3. Write a program that reads a message (can be characters, numeric or alphanumeric) and checks whether it is a palindrome (the characters in the message are the same when read from left-to-right or right-to-left).



```
[jcho18@gsuad.gsu.edu@snowball ~]$ gcc palinndrome.c -o pal
[jcho18@gsuad.gsu.edu@snowball ~]$ ./pal
Enter the sequence: bob
bob is a palindrome
[jcho18@gsuad.gsu.edu@snowball ~]$ ./pal
Enter the sequence: NotBob
NotBob is not palindrome
[jcho18@gsuad.gsu.edu@snowball ~]$ █
```

4. Write a program that will swap two variables without the use of any third variable. Utilize this program to write a program that reads two sentences that contain alphanumeric characters and the program must swap all the numerics in sentence1 with alphabet characters from sentence 2 and vice-versa. Keep the lengths of the sentences as identical.

This got me stumped, I just don’t know how to get about doing this.
I really want to see a solution to this one.



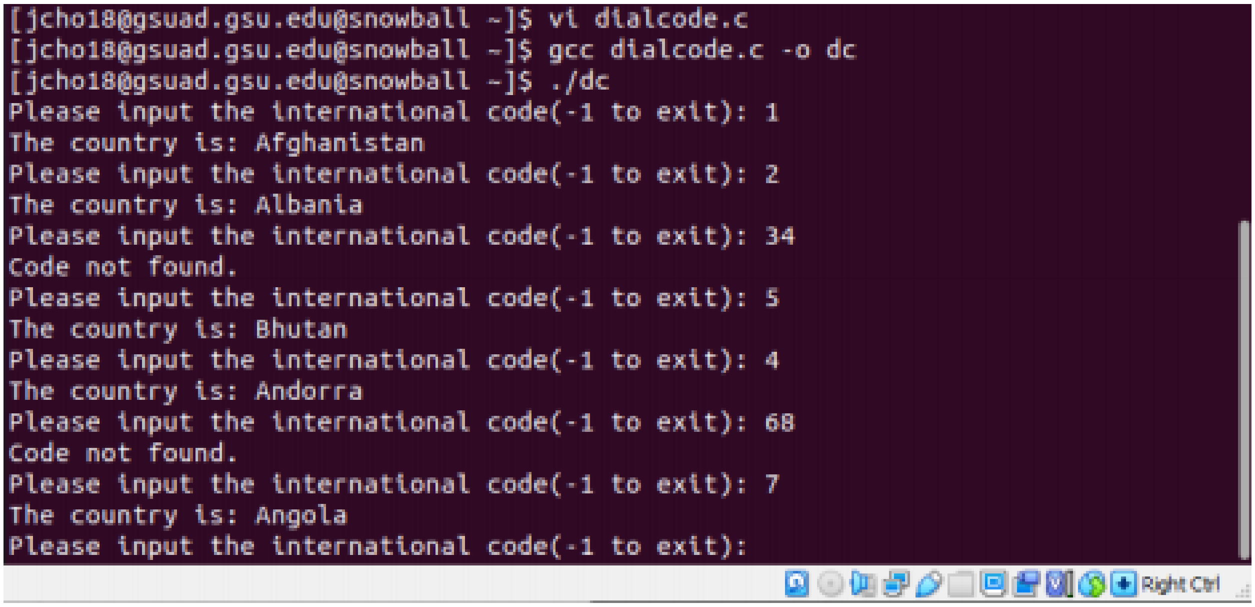
```
[jcho18@gsuad.gsu.edu@snowball ~]$ gcc Swap.c -o swap
[jcho18@gsuad.gsu.edu@snowball ~]$ ./swap
Before Swapping: x = 10, y = 5
After Swapping: x = 5, y = 10[jcho18@gsuad.gsu.edu@snowball ~]$
```

Part III : 20pts
Must incorporate Functions, Pointers or PointerArrays, and

Structures or Unions

5. Write a program that asks the user to enter an international dialing code and then looks it up in the country_codes array (see Sec 16.3 in C textbook). If it finds the code, the program should display the name of the corresponding country; if not, the program should print an error message. For demonstration purposes have at least 20 countries in your list.

   (Programming Project 1 on pg412 in C textbook)



```
[jcho18@gsuad.gsu.edu@snowball ~]$ vi dialcode.c
[jcho18@gsuad.gsu.edu@snowball ~]$ gcc dialcode.c -o dc
[jcho18@gsuad.gsu.edu@snowball ~]$ ./dc
Please input the international code(-1 to exit): 1
The country is: Afghanistan
Please input the international code(-1 to exit): 2
The country is: Albania
Please input the international code(-1 to exit): 34
Code not found.
Please input the international code(-1 to exit): 5
The country is: Bhutan
Please input the international code(-1 to exit): 4
The country is: Andorra
Please input the international code(-1 to exit): 68
Code not found.
Please input the international code(-1 to exit): 7
The country is: Angola
Please input the international code(-1 to exit):
```